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SCARLET FEVER

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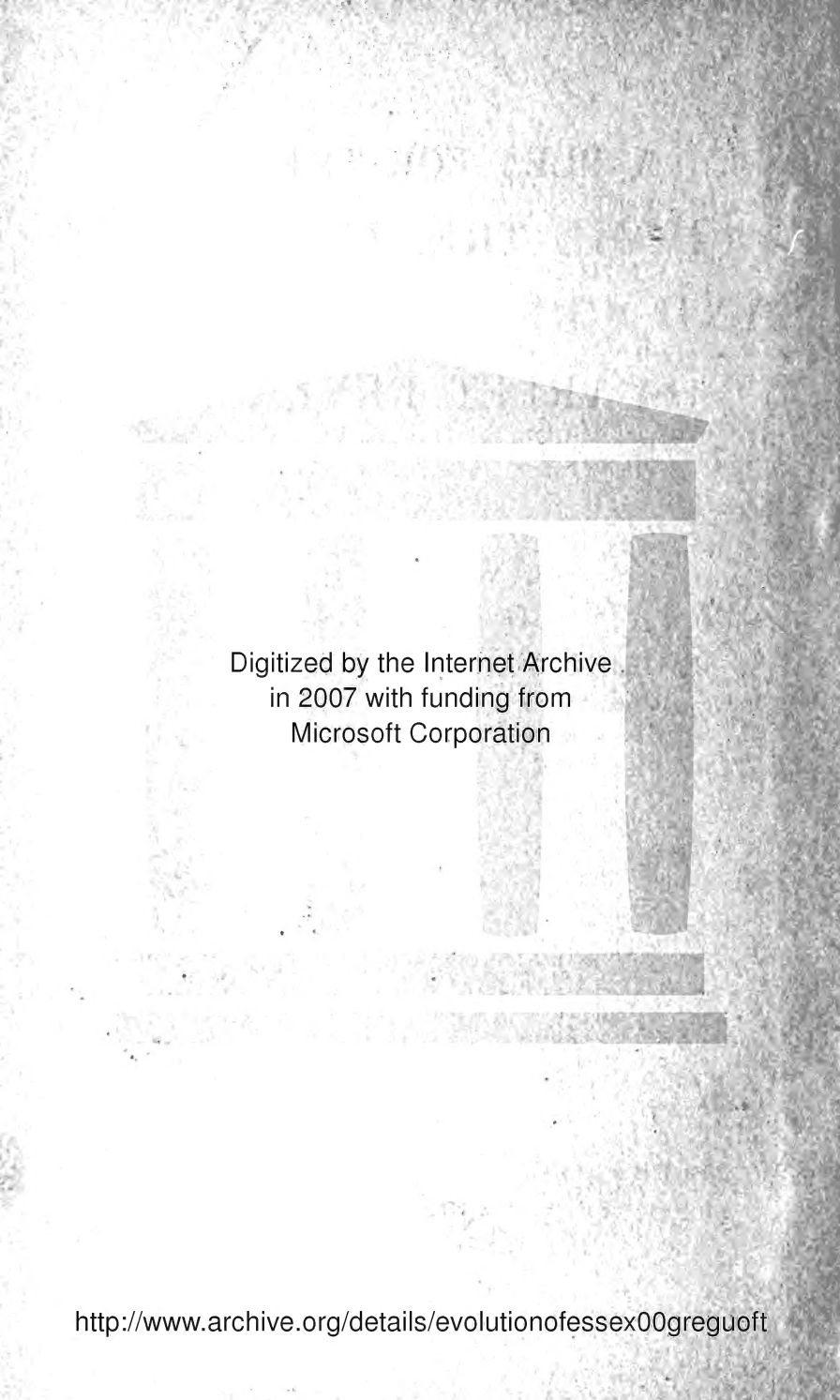
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A PLEA FOR THE HOME TREATMENT AND PREVENTION OF SCARLET FEVER

BY

ROBERT MILNE, M.D., CH.M.

MEDICAL OFFICER OF DR. BARNARDO'S HOSPITALS AND HOMES FOR THIRTY YEARS, ETC. ETC.

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PREFACE

THE first part of the following Brochure was published in the *British Medical Journal* of October 31, 1908. Since then papers were read before the eastern division of the British Medical Association and before the Ilford Medical Society, while a synopsis of the latter part was read before the Epidemiological Section of the Royal Society of Medicine in December 1909. From all most interesting communications have been forwarded to me, showing how highly the subject has been appreciated and taken up.

My best thanks are due to both Sisters and Matrons of the various Hospitals and Homes, as well as to other fellow-workers, for their hearty co-operation and enthusiasm in carrying out my instructions. Also to F. M. Scoone, Esq., M.A., Assistant Secretary to Dr. Barnardo's Homes, for his invaluable kindness and assistance in the preparation of this paper.

BLENHEIM HOUSE, BOW ROAD,
LONDON, E.,
December 1909.

HOME TREATMENT AND PREVENTION OF SCARLET FEVER

When I left Scotland, thirty years ago, there was a hazy report throughout the country that, if cases of scarlet fever were rubbed with ointment or oil, the scales (in peeling) were thereby prevented from flying about, and thus the risk of spreading the infection was lessened. Further, that if carbolic oil or other disinfectant were used it still further lessened the risk. I began to use carbolic oil in scarlet fever cases from the commencement of the disease, and I soon found in five families with many children that the trouble was limited to one member of the family; yet I did not realise its importance.

My first connection with Dr. Barnardo's Homes was due to an outbreak of scarlet fever at the Girls' Village Home at Barkingside early in 1880. To-day 1300 girls are there in residence. *Then* the number was under 500. Among these 120 girls were attacked. Not since have we had an epidemic of this proportion; indeed, epidemics are with us of very rare occurrence, and when

they do occur the cases are very few. A former President of the Local Government Board asked me some years ago: "Can you explain to us, Dr. Milne, how it is that you have so few epidemics among the children under your care in Dr. Barnardo's Homes, and how, when you do have cases, they are so few in number, while in our schools we have so many epidemics, and these affecting sometimes one-half or even three-fourths of the children in residence?" This question drew my attention somewhat markedly to the undoubted fact which had prompted it, for it suggested very clearly the difference in the lines of treatment I was in the habit of following in comparison with the usual treatment pursued by others in similar circumstances.

A family case.

From my earliest days in practice I adopted the carbolic oil treatment, both in my treatment of the children in the Homes and of my own family. Shortly after I permanently settled in East London one of my sons had an attack of scarlet fever. Our accommodation was too limited to permit of isolation. He was, however, carefully rubbed, and his tonsils swabbed with 10 per cent. carbolic oil. It surprised me at the time to discover that none of our other children took the infection, although the experience of after years showed that they were very susceptible to the disease.

During the intervening years I have been able most fully to test this practice in many hundreds of cases. Should the infection arise from milk or similar source it will spread in spite of the individual prohibition. Such an experience the children under my care passed through in the year 1904–5 (from December 16, 1904, to April 2, 1905), when ninety-five cases were attacked out of a community of 1100 children. Yet in no case could the disease be traced to individual contact. No adults were attacked. Out of fifty-eight cottages, cases appeared in thirty-seven.

My own children were very susceptible to scarlet fever. At different times six have had it, yet on no occasion has there been any spreading to the other members. This, although their mother nursed those who were ill and attended to the others in an adjoining room. In the course of a few days after the beginning of the attack the children were allowed to mingle freely with one another at games and meals. The sheet hung over the door, and kept moist with disinfectant, was dispensed with, for they were carefully rubbed with 10 per cent. carbolic oil or eucalyptus oil day by day, their throats treated, and they had a plentiful supply of fresh air. This thoroughly destroyed all germs, and prevented the disease from spreading. It also completely dispensed

with the need of elaborate disinfection afterwards, for the source of infection was destroyed.

Some crucial instances.

Only after years of most careful observation, however, was I able to establish this with full assurance.

In 1895 Rev. W. H. Finney, M.A., the chaplain to the Girls' Village Home, in connection with Dr. Barnardo's Homes, had a very severe attack of scarlet fever at Ilford. He peeled more freely than almost any patient I have seen, yet at the end of ten days, when he was peeling most freely, I had him brought up to my home in East London. He spent several days as one of the family. During these days he mingled freely with my children, both at meal times and at games. In fact, they were often all playing on the floor together. Several of my children had not then had scarlet fever, and none of them had contracted the disease; although some of them had the disease in later years. By this time I was fully convinced of the absolute prevention of the spread of scarlet fever when this treatment was faithfully carried out.

To many friends, both medical and other, I have strongly recommended this plan, and the directions have been faithfully followed on many occasions. The heads of one large family (Dr. and Mrs. Harry Guinness of Harley College) took up the system most warmly. On six occasions they

had the opportunity of thoroughly testing it, and after their first favourable experience they had not the slightest hesitancy in repeating the plan of treatment for subsequent cases. In no instance did the fever spread to another child, and this, too, when children of a few years old were in the same room from the very commencement of the attack. On one occasion in this family an eight-year-old niece was staying in the house on a long visit. Christmas was approaching, and about forty little children had been invited to a Christmas party. A fortnight before Christmas this niece was attacked by scarlet fever. In spite of this the party was duly held, and several of my own children, who had not then had scarlet fever, were invited. Not one of the party was attacked. The lady of the house observed that her niece and a little girl visitor were constantly together throughout the evening. She confessed afterwards that she had some doubts of the prudence of the proceedings; but she said to herself, "That is Dr. Milne's own girl. She may take all the risk!" Years afterwards this daughter of mine took the infection from another source.

On another occasion in the history of this same family, when one of their own children was taken ill with scarlet fever, a celebrated preacher (Rev. F. B. M.) wrote to them for a supply of books from their library. One of his grandchildren was

ill with scarlet fever, and he and his wife had had to leave their house and board out during the illness, two or three nurses being in attendance on the child. The father was not permitted to take books from his private supply. On a subsequent visit he found that the mother had nursed a little one through a scarlet fever attack about the same date, her other children being in and out of the room all the time. In this instance, again, only one child was attacked, and no infection was conveyed outside the house.

It is, of course, by no means easy to convince the medical profession and the laity that this method of treatment does not carry with it serious dangers. In one of the earlier cases dealt with a medical visitor to the home said to the mother, "Are you mad to allow your other children to be exposed to such a serious infection as scarlet fever?" All the children, healthy and infected, were playing together. "No," said the mother; "I have had similar experiences more than once, and I know that it is perfectly safe." "If Dr. Milne allows this, he should be prosecuted by the sanitary authorities." Her confidence was justified by the result. More recently in the same family a young child caught scarlet fever, and a brother who had not previously suffered lived in the same room and shared his little sister's bed from the beginning to the end of the attack.

On my return from a holiday in Scotland a friend (C. Hunter, Esq.) sent for me in great haste. Another medical man had been called in in my absence. He ordered one of his children to be completely isolated for eight weeks. There must be no contact with the other children. In a fortnight the children were all together without any bad result.

In the autumn of 1907 I was called to attend the children of J. L. S. Hatton, Esq., M.A., of the East London College. One of them I found suffering from scarlet fever. My own treatment was fully and faithfully carried out. The children mingled with each other freely throughout the case without any infection resulting. In convalescence the children went to the seaside for six weeks. On their return they travelled with some school-children on their way home. In a few days another of their number was attacked, doubtless from contact with their little fellow-travellers.

On three separate occasions, C. Smith, Esq., had scarlet fever in his family of seven. On the last occasion the plan of treatment was started at once in my absence—in every instance successfully.

In the winter of 1895 the fever hospitals were so full that admission could not be obtained for nine cases. These were kept in the ordinary hospital, carefully treated, without any others being affected.

It was during an epidemic at Ilford that I was able first to test somewhat fully the value of the treatment. From our isolation house patients were returned in five, four, three, and two weeks. They mingled with from sixteen to twenty-five other girls from two to sixteen years of age. In no case was there any infection carried.

On many occasions I have kept a child in a room with from six to twenty other children without any infection spreading. More recently the patient remained the whole time in a room occupied by twenty-four others, all under ten years of age.

Although I have shown how safe the children are, even in the same room, immediately the eucalyptus and carbolic oils have been applied, on one occasion, when the rubbing was done by a young nurse, she was attacked, but I believe this has never happened when proper care has been exercised.

Since writing the above notes a nurse in one of our hospitals was attacked with a severe form of scarlet fever. She was treated in the above manner in the hospital, yet, although there were young children in both the wards above and on the same floor on which she lay, and although they passed her ward constantly to the lavatory, there was not another case.

On December 13, 1907, a scarlet fever case

was brought into Her Majesty's Hospital. The Sister in charge, newly appointed, had had no experience of this treatment. I directed that the case should be treated in the way described, but on the following morning I found the lad isolated in a small ward. I thereupon put him among fourteen children in a larger ward and treated him there. No other case occurred. On January 22, 1908, another scarlet fever case occurred in the home, and the boy was promptly sent in to the fever hospital by the house-surgeon, who thought that it would be better not to run any risk, as there were eight recent osteotomies in the hospital. Of course, if the new mode of treatment proposed will not stand the severest tests the sooner its failure is declared the better. I should not have hesitated in the slightest to retain this lad in spite of the osteotomies. On February 5th and 6th two further scarlet fever cases occurred, also a case on the 18th, in the central home. These were placed in the large wards among the other patients, where they remained with the process of peeling going on, but no infection spread to any other case in the hospital.

The above cases I have taken from many; they show the result, although I would have preferred to carry on the plan a little longer and prove its safety more fully before publishing it. Some time ago, however, I met a nurse from a country dis-

trict who had been engaged in nursing scarlet fever cases for some time. It was hard, she said, to take the fee for the Nursing Institute from these poor people, to whom it was such a sacrifice, for two nurses were insisted upon by the authorities. To those who paid the fee it meant retrenchment for years. Such cases, combined with the many millions of pounds annually spent in the country over scarlet fever, have determined me to lay this plan before my medical brethren.

Method of treatment.

At first I used carbolic oil 1 in 10, yet in most of the above cases and for twenty-five years I have used eucalyptus oil. For the first four days I have it rubbed in all over the body from the crown of the head to the soles of the feet twice a day, then once a day until the tenth day of the disease. The aroma fills the room. It greatly modifies the throat trouble and kidney trouble; ear or nose complications I have not known. The tonsils, however, I always swab with 1 in 10 carbolic oil every two hours for the first twenty-four hours. This greatly relieves the pain, and enables the patient to swallow.

Perhaps I ought to mention that in the Institution under my care, both the Sisters in charge of the Hospitals, and the Matrons in the various Homes, have instructions how to act in regard to suspected cases of scarlet fever and of sore throat. Thus there is no loss of time

waiting for the visit of the medical attendant before the treatment be commenced.

A Village Home epidemic.

It will be found of great interest to examine the records of the epidemic of scarlet fever in Dr. Barnardo's Village Home for Girls, Barkingside, to which I have referred above, which occurred from December 16, 1904, to April 2, 1905. The cause was either milk infection or unknown. There were 1100 girls in residence in fifty-eight cottages. The number in each varied from sixteen to twenty-four. The epidemic broke out in thirty-seven cottages. In fourteen cottages there occurred only one case; forty-two occurred in cottages in groups of two, three, and four. While there occurred during the same time thirty-five cases in which the interval between the cases in the same cottage was over six days (the usual limit now given for infection), yet only two cases occurred on the sixth day, one on the fifth, two on the third, and two on the fourth day. These cases were all treated on the first appearance of any symptom as above. The five cases on the third, fourth, and fifth day, occurring among so many other cases, were due, I believe from my experience, to outside, and not to case-to-case infection. Twice during the epidemic I carefully inspected all the children to make sure against any peeling case of unrecognised scarlet fever, but failed to find any trace.

The most careful separation of the infected children and isolation of those who had been exposed was carried out.

The following table summarises the facts :—

These cases occurred in thirty-seven cottages, of which

48	appeared as primary cases in the various cottages, some appearing in groups of two and three on the same day.
29	appeared in one or other of the above cottages, but with an interval of from nine to fifty days.
6	appeared after an interval of six days.
1	on the fifth day.
4	on the third or fourth day.
7	within forty-eight hours of one another.
95	

Thorough!

In conclusion, I would again emphasise most strongly the great need for care and thoroughness in carrying out the lines of treatment. Again and again I have said to both most sensible mothers and trained nurses, "Rub the patient most carefully from the crown of the head to the soles of the feet," only to hear on my subsequent visit and inquiry, "Oh, doctor, I did not know you meant me to rub it into the roots of the hair and the armpits," &c. With such an omission, disaster would of necessity follow. The eucalyptus oil must be rubbed carefully all over the body, from the crown of the head to the soles of the feet, both morning and evening for the first four days, then once daily until the tenth day; the throat to be swabbed with carbolic oil

10 per cent. every two hours for the first twenty-four hours.

With this plan of treatment I have never known any nose, ear, or kidney trouble result. At the same time it greatly modifies the severity of the attack. I have always given careful injunctions to avoid cold for three weeks, and therefore to have the children warmly clad.

At first I only allow soda-water or hot water and milk in equal quantities. In a few days light diet, and by the tenth day their ordinary meals.

The blessing of this plan of treatment, which I most highly and confidently recommend to medical men for use in private families, in boarding-schools, and wherever children are congregated together, cannot be over-estimated. The statement in the language of Mr. J. Brendon Curgenven, whose work merits the highest praise, "that no isolation of the patient in the way now practised is necessary," is more than proved by the above records.

Measles.

For several years I have adopted the same method of treatment in cases of measles. The great difficulty found in such is the infectious nature of the malady before any signs are definitely manifest. When, however, the eucalyptus oil is used at the earliest possible moment, I have found that it has entirely stopped the epidemic

spreading. When such a case has occurred I have kept the aroma of the oil in the rooms, and had a little sprinkled on the beds day by day, as well as on a handkerchief at the chest of the children. This has, I have found, entirely limited the epidemic to at most one or two cases who had been playing with the first child on the attack coming on, while in many instances it has cut the epidemic short. This spring an outbreak occurred in Her Majesty's Hospital in a ward containing twelve children, all under four years of age. The child was isolated and the above plan carried out: three cases occurred on the fourteenth and fifteenth days, but none afterwards.

I should like to be permitted to add a word of warning on the subject of measles. Since my paper was written a measles epidemic appeared in our receiving home, where sixty children were in residence. The epidemic was limited to the first infection—that is, to cases occurring within twelve to sixteen days after the first appearance. Yet I cannot speak with the same confidence in regard to measles as with regard to scarlet fever. I should like to emphasise this, because several correspondents have written to me as if I had recommended this line of treatment being pursued with equal confidence in cases of measles as in cases of scarlet fever.

In both of the articles published I have referred to the same line of treatment for measles, namely, by eucalyptus. Dr. Curgenven says he has tried it and found it useless. My experience leads me to a far different conclusion. As stated in my first paper, I found it most beneficial. My subsequent experience in several homes has fully confirmed this. Yet against this allow me to put the following. The brilliant writer of "Peru" was staying with her younger sister when the latter was attacked with measles (on a Saturday). On the following Monday her mother consulted me as to what precautions could be taken to prevent the elder sister developing the trouble, and, secondly, how the spread of the disease among the six younger children (who had not then had measles) could be prevented. She felt sure her elder daughter would be attacked, as she was considerably run down. Naturally I felt that this furnished an excellent opportunity for a trial of the eucalyptus treatment, and I recommended it accordingly. The treatment was at once begun and continued daily. The younger children had eucalyptus placed in their pillows at night, and on a handkerchief on their chests by day. On the sixteenth day measles became manifest in the eldest daughter. There had been no isolation as regards the others, and the treatment had still been continued in their case. Would they escape?

They did not. In sixteen days four were down with a modified attack of measles.

By way of contrast to the above, consider what occurred at the same time at the Girls' Village Home. In six different cottages, six children were attacked with measles. First infection occurred in four cottages, and none beyond.

Measles infection by coughing.

Now is it possible to account for the successful treatment in these cottage cases as compared with the failure in the private family? I think so. In the private household the children were often in the same room, while in the cottages they were in a different room, which, however, opened upon the same landing as the other bedrooms. My personal belief is that in the private family the infection was spread through the violent coughing of the patient. For in the act of coughing disease germs will be thrown at least twenty feet—probably a much greater distance. In this way the contagion was thrown far beyond the immediate action of the eucalyptus, and inhaled by the others before destruction of the germ, and so the disease spread.

In the cottages, on the other hand, the eucalyptus had time to act upon the contagion and destroyed it.

Eucalyptus treatment in measles.

My ultimate conclusion is, therefore, this, that I believe the eucalyptus treatment will be as successful in measles as in scarlet fever if we succeed in obtaining some powerful, yet agreeable,

disinfectant for the child's mouth and air passages. In this connection it must be borne in mind that, by careful examination for Koplik's spots, an attack of measles may sometimes be detected three, or even four, days before the appearance of the rash, and thus preventive precautions can be adopted at a very early stage indeed.

In October 1909 three cases of measles occurred simultaneously in a branch Home with seventy children. They were treated on the above lines. There was no further case.

A unique scarlet fever record.

All the scarlet fever cases detailed in the following pages have occurred since the appearance of my first paper in the *British Medical Journal* of 31st October, 1908. The record is, I believe, unique. I may perhaps be permitted to mention here that without the co-operation of my son, Dr. J. A. Milne, Resident Medical Officer at Her Majesty's Hospital, Stepney Causeway, it would have been impossible for me to carry out the necessary requirements. I am greatly indebted to him for his watchful oversight of the cases which have come under his care, as well as to other fellow-workers. I may also add that these cases have been closely examined and the histories carefully gone into by some seventeen medical superintendents of scarlet fever hospitals, and by over two hundred medical officers of health and general practitioners. I would have greatly preferred to

submit this record to my professional brethren in the form of a *communiqué* to the medical press as I did before; but circumstances, over which I had no control, prevented me. I have, therefore, to adopt this pamphlet form.

I may here mention that we have considerably over 8600 children under the sheltering care of Dr. Barnardo's Homes. Over 1300 girls are in the Village Home at Barkingside, Ilford. These reside in sixty-seven cottages, with a mother over each. Also a receiving house for seventy. The village stands in its own ground of sixty-four acres, and is beautifully laid out. In the village we have both a school and a church, but greatly need a hospital, for at present three cottages are utilised as an infirmary. In our large London Homes we have from 120 to 400 children. These are all trained to work when twelve years of age —the older lads in one or other of fourteen trades.

Girls' Village Home epidemic, 1908.

In November and December 1908, nine cases of scarlet fever occurred in nine different cottages at the Girls' Village Home. All of these had the carbolic oil and eucalyptus treatment from the first symptoms; most of them in their individual cottages. Two, however, for greater convenience, were treated in the general wards of the infirmary cottages. The other children in the cottages were allowed to visit them daily. After ten days the patients were out of bed and mingling freely with

their companions in their respective cottages. They also attended, with 1300 other children, without restriction, both day school and church. The local medical officer of health watched the progress of the treatment with the keenest interest. I requested the local secretary of the British Medical Association to invite all members, as well as other medical men of the district, to call at the village and inspect the cases any Tuesday, Thursday, or Saturday, when I was in attendance. Other medical officers of health, also a class of students in public health, visited and inspected these cases. The ages of the patients were from eight to sixteen years. The cottages in which they lived were widely apart from one another. In every instance the symptoms were definite from the beginning, and in the latter stages every single case had well-marked peeling. I have embodied certain dates and comments in the subjoined table :—

Date of Attack.	Case Notes.	Condition as to Peeling.
1. November 2, 1908.	Severe throat and rash.	Heavy.
2. November 5, 1908.	Slight at first, then well marked.	Freely.
3. November 5, 1908.	Throat and rash severe.	Heavy.
4. November 10, 1908.	Well marked.	Freely.
5. November 10, 1908.	"	"
6. November 12, 1908.	"	"
7. November 13, 1908.	"	"
8. November 20, 1908.	"	Heavy.
9. December 12, 1908.	Most severe.	Very heavy

After these nine, no fresh case occurred until the following :—

10. Feb. 5, 1909.	15. May 11, 1909.	20. Aug. 5, 1909.
11. Feb. 6, 1909.	16. May 11, 1909.	21. Aug. 21, 1909.
12. April 3, 1909.	17. June 19, 1909.	22. Sept. 9, 1909.
13. April 8, 1909.	18. Aug. 5, 1909.	23. Oct. 2, 1909.
14. May 6, 1909.	19. Aug. 5, 1909.	24. Oct. 5, 1909.

Every case had all the symptoms of scarlet fever pronounced, followed by well-marked peeling.

Perhaps I ought to direct special attention to the fact that these occurred in eighteen different cottages and in the receiving house. There were three cases in the latter and in one of the cottages, while in both of these, as well as in another cottage, two cases occurred on the same day.

None of these cases were isolated, for they were, with one exception, with other children all the time, and in ten days among 1300 other children. In June cases were seen by some seventeen medical practitioners, who had an opportunity of seeing the peeling towards the end. These cases came from school, where they had been, as all the others were, since ten days after the appearance of the trouble.

One of the above cases was a child of four years of age. The symptoms appeared on the day following her admission to the Home. The temperature rose to 103·8°, and the symptoms were very severe. On the eleventh day, when peeling most freely, she was seen by a scarlet

fever hospital superintendent and a local secretary of the British Medical Association. Some sixty-nine other children were in the Home, sixteen of whom were under four years of age. With these she was constantly at play. On seeing this the medical superintendent's remark corresponded with the expression of a medical officer of health who saw some cases elsewhere the day before. "Good gracious! is it safe? I see the scarlet fever case and I see the healthy children all about in the room, but I must have a few days to think over it, for I cannot take it in. It is so contrary to all my teaching and experience. All I can say," he added with a smile, "is that by all sanitary law and authority you ought to be in prison for ten years for exposing so many children to such dangerous infection."

At the end of the fourth week this child was seen by the medical officer of health with some fifty children at dinner under the trees in the open air. She was carefully inspected by him. Her hands were peeling most freely in large patches. In spite of this mingling together, however, with so many children of such tender years, no other case occurred. She was inspected two days later by other medical practitioners from a large society.

The final cases at the Village Home occurred in the beginning of October. Towards the end of that month the patients were inspected by one

of London's most celebrated physicians. He remarked, after going round: "How hard it will be for medical men to give up their old practice, although the facts are so clearly set before them! Such an interesting sight I have not seen. You have done a great work."

A contrast.

On 12th July, 1909, I certified a case of scarlet fever in a branch Home where I had on eight previous occasions kept a scarlet fever child in a room with some fifteen to twenty others under ten years of age. On the 13th July the sanitary inspector visited the Home, and on the 14th the medical officer of health. When I called to see the child the same day the matron told me of these visits and of the medical officer's remarks. These led me to write the following:—

"DEAR DR. . . .,—The matron has just told me you called this afternoon and insisted on all the children being removed from the dormitory where I have kept a case of scarlet fever. This I have proved to be unnecessary. However, if you insist on this, the only plan is for you to remove the case."

On the following morning the child was removed. Had I kept this child it would, perhaps, have laid me open to the treatment suggested by the scarlet fever superintendent: "Imprisonment for ten years by all sanitary law and authority." In this case I deemed discretion to be the better part of valour.

In the outbreak of November and December 1908, at the Girls' Village Home, I received a written assurance before the commencement of the plan of treatment that the milk supplied came from farms certified free from any infectious disease. One case had occurred previous to these nine, and this had been removed to the isolation hospital. It was due to this instance that I called for the written assurance referred to. I may add that I would not have the slightest hesitation in accepting milk from a farm or elsewhere where children or others were affected with scarlet fever, provided only that the treatment I advocate is duly and absolutely carried out. Milk infection.

In reply to the natural question: "How were these children infected?" five sources, apart from the milk, have been found. First of all it may come from some of the children's friends. Children's friends are allowed to visit the village once a quarter, and there is a considerable number of these week by week. Secondly, from goods sent in, such as clothing. Thirdly, the children occasionally visit the outside shops at Ilford. Fourthly, ordinary visitors to the Homes may have carried the contagion. Lastly, children may have been admitted when actually suffering from the disease. Source of infection.

In the earlier days of my practice I was much troubled with doubtful cases. Now, under the Doubtful cases.

treatment which I advocate, these give me no anxiety whatever. On the slightest suspicion suspected cases are put to bed for from two to four days and rubbed, morning and evening, with pure eucalyptus oil, and their throats treated with 10 per cent. carbolic oil. It is only when the cases are confirmed that I have the children rubbed once daily until the tenth day. The plan of thus treating suspicious cases with eucalyptus has the great advantage that it does not in any way interfere with the confirmatory diagnosis of the future, whether peeling, rash, or tongue.

Leopold House epidemic, 1909.

Leopold House is one of our London Homes in which we have 300 boys, ranging from six to fourteen years of age. On 4th February of this year a case of scarlet fever occurred there. The patient was at once rubbed with pure eucalyptus oil and his throat treated with 10 per cent. carbolic oil. He was transferred at once by my son, James A. Milne, M.B., B.S., &c., to Her Majesty's Hospital in Stepney Causeway, and there the usual treatment was carried out. Besides other patients, there were at that time in the hospital a case of tendon grafting, a hip-joint case (operated on on 20th January), two astragalectomies (on 27th January), a hip-joint incision, and a paraffin injection for a bridgeless nose. Further cases ensued in Leopold House, and on 8th April thirty-five cases had occurred.

These were treated in two wards amongst other patients in the hospital. After ten days nine of these were passed on for isolation to a cottage near, because new cases were still occurring at Leopold House and because we wanted room in the wards. During the time these thirty-five cases were in the hospital, we had some 200 patients in residence. These included fourteen under five years of age. The operations performed during the whole period scarlet fever patients were in the hospital and in the same ward included :—

Removal of large portion of scapula	1	Astragalectomy	3
Hernia (radical cure)	13	Empyœma	1
Cataract needled	2	Fracture of femur (treated)	1
Osteotomy of femur	8	Bruised and torn hand and fingers	1
Tonsils and adenoids removed	17	Removal of sequestrum	6
Nerve grafting of facial nerve	2	Resection of rib	1
Suture of median nerve and separation of tendons	1	Skin grafting	3
Mastoidectomy	3	Amputation of leg and thigh	2
Circumcision	4	Lithotomy (supra-pubic), stone 4½ oz.	1
Excision of knee	6	United fracture	1
Movement of elbow joint	4	Tendon grafting	1
Paraffin injection for bridgeless nose	2	Cleft palate	2
Osteomylitis of tibia (upper end)	1	Hammer toes	2
		Arthrotomy	4

And all the time side by side with these scarlet fever cases, the beds so near that the lads could touch hands, 750 cubic feet being the space per bed, a great contrast to 2000 in isolation hospitals.

Special incidents.

In no single instance has there been any spread of the fever to other cases in the ordinary way,

even when the scarlet fever patients were in bed side by side with the above operation cases. Several incidents, however, in connection with this outbreak call for most careful attention. On 23rd February a boy was admitted to the hospital to be operated on for hernia. The lad in the next bed had, on the 26th, been in with scarlet fever for nearly forty-eight hours. When I went round the ward on 1st March I had occasion to examine this hernia case. I found to my amazement that the lad had scarlet fever. "How is this?" I inquired. "Has our plan of treatment failed?" On inquiry the fact came out that on the 26th, early in the morning, the hernia patient borrowed the washing flannel and towel from the scarlet fever case in the next bed, and that morning, before he was rubbed with eucalyptus oil, he had used both. The mode of infection thus became apparent, and no surprise need be manifested at the result.

Further, I discovered that on that very morning the lad had been out of bed, had dressed, and had taken breakfast to six boys in an adjoining eye ward, where there had been no scarlet fever cases. He handed them their bread and butter, &c. This occurred on 1st March. On 3rd March two of the lads in this ward developed scarlet fever, and a third on 4th March, the last case being the only one in which peeling was not well

marked. This is the only occasion I have ever known scarlet fever spread after a patient was under treatment, and we need not be surprised at the fact when the circumstances are considered. All the other cases have had from slight to very heavy peeling.

A pneumonia case.

On Monday, 15th March, with a scarlet fever hospital superintendent I called at the isolating cottage to which, as already stated, nine cases had been transferred from Her Majesty's Hospital. I was greatly surprised to find that on Saturday, 13th, which was a bitterly cold day, two lads had come in without being warmly clad. I had given most careful instructions to see that these lads were so clad. The two lads knew where they were going, and went without permission. One of the boys from the isolation cottage died a week later in the hospital of pneumonia of both lungs. The right lung, we found, was solid; the left lung was nearly so, with slight pleuritic effusion. No fluid was found in the abdominal cavity. All the time the urine was normal in quantity and contained very slight albumen. The kidneys were in a healthy condition, normal in weight. It is a most noteworthy circumstance that the cause of death was pneumonia—a disease very rarely known after scarlet fever—while the kidneys were healthy.

Another case is worthy of comment in connection

An otorrhœa case.

with this same outbreak. A lad was admitted to the hospital suffering from scarlet fever and chronic otorrhœa. His temperature continued high, and generally he was in an unsatisfactory condition. After a few days the temperature began to fluctuate, aud well-marked tenderness over the mastoid gradually came on. I operated on Monday, 22nd March. The mastoid antrum was opened and pus found. The iter was also opened up, but the ossicles were not disturbed. On the 24th he was satisfactory in every way. (I may mention in passing that in clearing out the mastoid antrum I rarely disturb the ossicles, although I always open up the iter. The after results are of the best, and frequently perfect hearing is established.) A scarlet fever hospital superintendent remarked that these cases did not in any way negative the claim I made for the value of my method of treating scarlet fever, but fully substantiated it.

An ichthyosis case.

The twentieth case at Leopold House was an extreme case of ichthyosis. When the eucalyptus oil was applied it caused such pain that my son wrote particulars of the patient and sent him to the isolation hospital. This is the only instance of a case where the treatment could not be carried out.

Medical invitation.

In connection with this outbreak, I addressed a letter to the secretaries of the Medical Officers of Health Association, and of the Medical Officers of Public Schools Association; also to the medical

superintendents of scarlet fever hospitals in London. I explained all the circumstances, and conveyed an invitation to them to visit the hospital at 19 Stepney Causeway. In response I had many visitors from the hospitals, who spent hours in investigating the cases. They were amazed to find scarlet fever patients in beds side by side with the above serious operation cases. In some instances the rash was fully out, and peeling was progressing in various stages. The history of each case was fully gone into: for instance, the flannel and towel case, which was universally agreed to be most interesting and instructive. Also the pneumonia case, which showed how free the kidneys were from attack. Some of my visitors had not heard of such a case before; while some of them said they were the most convincing evidence of my claims for the benefit of the treatment.

Stepney Home epidemic.

In the Stepney Home there are some 350 lads, mostly over fifteen years of age. From March 25th to July 5th eleven cases of scarlet fever have occurred, while in some of the other Homes there have been eight cases among lads from six to fourteen years of age. These were all treated on the same lines, and were mixed with the same class of patients in Her Majesty's Hospital as the above cases from Leopold House. In the Stepney and other cases the symptoms

were well marked, both in the initiatory stages as well as in the peeling. In this outbreak, Stepney Home School infection was excluded.

Source of infection.

No common source could be traced, but as the lads are allowed to go out freely, and as many cases occurred in the district, this is most probably the cause. The other cases attended ordinary schools.

Particular cases.

Two cases in the Stepney outbreak call for special attention.

The first came under our medical care after he had been ill for some days. The history sheet on his admission to the hospital reads: "Sore throat for several days, headache, vomiting, well-marked eruption." He did not complain, however, previous to his admission. He was then treated in the usual way. His case ran a favourable course until the fifteenth day, when he had pyrexia, and complained of pain in the gland at the angle of his jaw. Afterwards an abscess was opened. Heavy albumen appeared on the seventeenth day. Subsequently endocarditis followed. He died on the thirty-sixth day. To me this does not negative the claim I have made for my special treatment. For, in this case, the treatment was not commenced, by any means, at the earliest possible moment, as I have always so strongly advised. It comes into line with many of the isolation hospital cases, for ample

time was allowed for secondary infection. May not the question be fairly raised: "Do all the serious complications come through secondary infection?" I am inclined to say they do.

The second case is thus described on admission to the hospital: "Headache, sore throat, furred tongue, and septic-looking rash." He was treated in the usual way. Almost at once, however, he developed lobar pneumonia, yet he ran a favourable course.

Medical inspection.

A medical officer of health who called and saw some of these Stepney cases in the various stages remarked, "Good heavens, Milne! a scarlet fever case between two cases of recent operations for hernia! I could not have believed it unless I had seen it." Yet there was no infection.

Limitation of spread of infection.

Let me remark that the astonishment expressed by these visitors is universal among medical men whenever they have observed cases under the treatment. On many occasions I have kept a child in the same room with from six to twenty-five other children, without any infection spreading. In several recent experiences the patient remained the whole time in a room occupied by twenty-four others at night, all under fourteen years of age. A company of medical officers of health visited our Village Home while scarlet fever cases were peeling freely. There was one instance of especially bad tonsils, and one case of

chronic otorrhœa. When these were seen by the medical officers of health, one said: "This is marvellous. To think that I was so long in charge of a scarlet fever hospital, and in spite of all I could do, and keeping the children seven and eight weeks, to find a fresh outbreak on their return home; yet here, before our eyes, we see case after case in cottages with from sixteen to twenty-four others, mingling freely with one another all the time, and, after a few days, with 1300 other children, both in school and at church. Our system of treatment seems absolutely ridiculous, with its expense, its labour, and worry, in contrast to this simple plan; and yet the efficacy of this plan is beyond question."

An experience among babies.

I cannot resist including the following important testimony:—

On February 26, 1909, Dr. Charlotte Wheeler, resident medical officer in our "Babies' Castle" Home, Hawkhurst, Kent, wrote that they had an outbreak of scarlet fever, and that she was treating the patients on the lines I advised. She wrote, on March 3rd: "We have had six definite cases of scarlet fever. The first was a servant girl on February 24th—2, 3, 4 on February 27th, 5 and 6 on March 3rd. The six were nursed together in the babies' room, being sent there as soon as they were found, the nurse attending to the other children at the same time. On March 10th the

children all returned to their respective nurseries, and the service girl began very light work in the nursery. She was peeling freely at the time she started work among the uninfected children. One other case peeled heavily, the others more slightly. There has been no nephritis or ear trouble, except one child, who had been previously suffering from purulent otitis, which had ceased, but recommenced. We have been now three weeks without a definite case." Later, she wrote: "There has been no further development, nor albumen." There were some eighty-four children in the Home, the oldest two being eight and nine years of age. Moreover, they are delicate children, placed there for special nursing.

At sea.

A very important experience is that of a medical friend who had seen some of the work I have described above. Having charge of an emigrant party to a distant colony, with many children, he found some cases of scarlet fever appear among them soon after starting. He had a good supply of all the necessaries for the method of treatment I have advocated. No case appeared after the third day out; consequently there was no spread of the epidemic.

Outbreak at Birkdale.

The following notes of a scarlet fever outbreak at our Home at Birkdale, Lancashire, deserve the closest attention.

This branch is under the medical superinten-

dence of Dr. F. A. E. Barnardo, an esteemed and worthy brother of the founder of these Homes, and the inmates consist of some of our most delicate and crippled children. The number of children in residence at the time of the outbreak was forty-nine. Scarlet fever cases occurred here as follows during this outbreak :—

Name.	Age.	Date.	Throat.	Rash.	Peeling.
E. M. L. . .	8 years	July 10	Slight	Full	Well-marked
G. M. L. . .	7 ,,	,, 19	,,	,,	Abundant
H. B. . . .	3 ,,	,, 21	Severe	,,	,,
G. V. S. . .	5 ,,	,, 22	,,	Slight	,,

The first two cases were sent to the isolation hospital, during Dr. F. A. E. Barnardo's absence, by his assistant. Dr. Barnardo, on his return, brought them back, and they were forthwith treated with carbolic oil and eucalyptus oil, and put with the other children. The third and fourth cases had this treatment from the very commencement, and remained with four other children the whole time. These last four had not previously had scarlet fever, as was ascertained by careful inquiry afterwards. It was thus a crucial test. These eight children (four scarlet fever cases and four who had never had scarlet fever) slept in one

room. The nurses went freely from these children among the others in the Home, yet no other case occurred. There were no complications. I have before me frequent and full reports of the testing of the urine in every case, and on each occasion they are marked "No albumen."

I may mention here, as showing the condition of the children in this Home, that the first case is that of a child with congenital deformity of both hands and feet. The second is a child with amputation of both legs below the knee and very delicate. The third, who weighed only 6¼ lbs. when admitted to the Homes at the age of eight months, suffers from specific disease, has a bridgeless nose, and is afflicted also with ozæna and otorrhœa. In the fourth case there is Pott's Disease of the spine, and the child has also a sinus.

The four children who slept in the same room during the six weeks with the above cases are thus described :—

A. 6½ years	Infantile paralysis.
B. 4 „	„ „
C. 2½ „	Mal-nutrition.
D. 1 year 10 months . .	„

The room in which these cases were treated was on the same landing as the bedrooms where all the younger children slept. "The youngest and feeblest children," a note says, "were chosen for this test. Dr. F. A. E. Barnardo was delighted

with the result, and he will always follow your mode of treatment."

Illustrations of limitation of disease.

In my experience I have never known the trouble spread through any cases of otorrhœa or ozæna, for I never have such. I have, however, had children returned, after seven weeks' absence in a fever hospital, with a little skin on the sole of their feet unpeeled, and within a few days the children who slept on either side of them were attacked. It is the more necessary to emphasise this, because tonsils, ears, and nose have been blamed by many prominent medical authorities as being the only cause for the spread of scarlet fever infection. Yet, as one medical officer of health remarked in one case of mine which he examined: "If tonsils ever convey the infection this one should." After fourteen weeks, however, there is no sign of any infection from any of the above cases which I have detailed.

Both doctors and public have been brought up with such a firm conviction of the infectious nature of scarlet fever that I find it strikes every one with astonishment to find that scarlet fever treated thus is really as little infectious as chilblains. It will show how long I have followed this plan of treatment, and also perhaps take the sting out of some possible criticisms, if I add the following incidents.

When last year some officers of public health visited the village, the lady superintendent told

them how, eighteen years ago, her daughter was taken into the isolation cottage for scarlet fever. After ten days the child was sent home in the peeling stage. Her mother did not then know how safe such a procedure was. "Consequently," she said, "I had all a mother's anxiety about my eighteen months' baby, yet nothing whatever happened! After this my confidence in Dr. Milne's method of treatment was fully established."

Some time since a former matron of our hospital in London wrote: "When I came to the hospital over eleven years ago as matron I was greatly astonished at Dr. Milne's method of treating scarlet fever. I thought he was insane when he said to me: 'Have that child carefully rubbed with eucalyptus oil and his throat treated, and put him in the ward with the other children.' I was sure every child in the ward would develop scarlet fever forthwith, and I was astonished that we had no further outbreak. During the time I was in the hospital we had a large number of cases, yet I do not know of one instance in which the infection spread, or complications ensued."

Only a few days ago two former matrons of subsidiary branches of Dr. Barnardo's Homes, who had left us many years, called to make inquiries regarding this system of treatment. When I explained it they found that they had gone through

it quite frequently in the Homes when they were in charge without knowing it. "Oh," said they, "how often we have done that, but we thought it was only for suspicious cases of scarlet fever. We know all about it now!"

Some details of treatment.

I think it may be well to dwell a little upon the method of treatment which I pursue. At first I used carbolic oil 1 in 10, yet in most of the cases I have mentioned, and for twenty-five years, I have used pure eucalyptus oil as supplied by Messrs. Hewlett & Son. For the first four days in a scarlet fever case, commencing at the earliest possible moment, I have pure eucalyptus oil gently rubbed in all over the body, morning and evening, from the crown of the head to the soles of the feet. Afterwards this is repeated once a day until the tenth day of the disease. The aroma of the oil fills the room and saturates the atmosphere. The tonsils, however, I always swab with 1 in 10 carbolic oil every two hours for the first twenty-four hours. This greatly relieves the pain, and enables the patient to swallow. Often the affected child asks for this to be done. Only on rare occasions have I found it necessary to swab the tonsils for a longer period than twenty-four hours, and never when commenced early. My method is to make a firm mop of cotton wool on the end of a pair of forceps, thoroughly soak the wool in the carbolic oil, and then swab the tonsils and the

pharynx as far up and down as possible. It is advisable, however, to use a tongue depressor and depress the tongue as far as possible. This unfolds the mucous membrane, opens the follicles to some extent, and allows the carbolic oil to be caught and held in the folds. From this it is gradually liberated, and thus its influence is prolonged. Further, this exposes the pharynx thoroughly, and enables the operation to reach every part. The medical attendant should do this himself, at least on the first occasion. Gargles, tablets of any kind, formament or pastilles, even from the best makers, are of little or no value so far as my experience goes. The mop used should be rather larger than the last joint of the patient's thumb. The wool should thoroughly cover the end of the forceps (or lead pencil), while a fresh swab is used on every application. Not only is this the best remedy for scarlet fever sore throat when applied early, but it is by far the best in cases of follicular tonsilitis, and also in cases of diphtheria if used early and with the same frequency, and longer continued. It has a wonderful anæsthetic power, besides being a powerful germicide. I am not ignorant of what has been urged against it, and many have said that the carbolic acid in the oil was powerless. I confidently, however, ask a trial for it, for in my experience—and it is a fairly wide one—I have found nothing to compare with it in value. This

is also the testimony of many who, on my advice, have given it a good trial under similar circumstances. To me it is evident that this greatly modifies the whole virulence of the attack, whereas nose, ear, or kidney complications I have not known when used as directed.

The question of medical fees.

The treatment which I advocate has a direct bearing on the professionally important question of medical fees. In the usual run of scarlet fever cases at the present time a scarlet fever case means a single visit plus a notification fee. By this method, which means retaining the patients in their own homes, it means many visits and close watching of the patient for some time. Financially, therefore, to the medical profession it means a great gain, and this is a point which, to the medical man, is naturally of some importance. It is a point worthy of consideration, and ought to commend it to medical men.

The economy of the treatment.

I need hardly add that, nationally considered, this system means a saving of untold amount. A medical officer of health said to me that he had some thirty cases of scarlet fever caused by milk infection. Isolating them cost over £300. Another, when examining these cases at Ilford, said that even in his district (60,000 to 70,000 inhabitants) this would mean a saving of many, many thousands of pounds annually. A third scarlet fever hospital superintendent said that for

England alone it meant a saving of *many, many* millions of pounds annually. "I have tried Dr. Milne's plan," he stated, "and have no doubt of its success. What it will save to the world no one can estimate. No one can guess its large economies."

In this connection I may quote the testimony of a medical officer of health. After reading the articles and examining the cases under treatment at the Village Home, he asked to see any others that might occur. He came to Her Majesty's Hospital and examined the scarlet fever patients lying side by side with operation cases. He was intensely interested. He informed me that in his district they had been on the point of erecting an isolation hospital for scarlet fever cases, but that they had agreed to postpone the building for a year, and that all the medical men of the district had agreed to give this treatment a trial of twelve months. He arranged to provide a nurse or special nurses, who would faithfully carry out my methods. In this instance the saving to that district alone would amount to a very considerable sum in four figures. Public opinion, alas! proved too strong to carry this out.

This plan has been adopted by several medical officers of health, supported by the medical practitioners in their district, even to the closing of the isolation hospital for scarlet fever cases; yet

I would again most strongly urge that some districts be selected where scarlet fever is threatening to become epidemic, and that all the medical men unite with the medical officer of health to adopt for a test the plans I have set forth. In this trial I would strongly urge that a fully competent staff of careful nurses be selected and supplied for the carrying out of the treatment. For a fair trial the cases under each nurse ought not to be too numerous. I would also suggest to my medical brethren the necessity for cutting off other sources of infection from a home, *e.g.* by keeping the other children of the family from school for a day or two; otherwise the home case may be unfairly blamed. To this I attribute some of my success in my earlier experiences.

A new viewpoint.

I quite understand that amongst my medical brethren there is a natural dread of breaking new ground and going dead against one's training and experience. To regard scarlet fever as non-infectious (for that is what practically this method of treatment implies) may well seem unnatural and revolutionary. A doctor speaking on this point illustrated it by a story of our noble King Edward VII., who, when Prince of Wales, was being conducted over an iron foundry. He was told that if he rolled up his sleeve and plunged his hand and arm into a mass of molten metal it would not injure him in the least. Although he

might believe it he would certainly hesitate before obeying the suggestion. The doctor, turning to me, said: "We believe in your facts. We cannot do otherwise; but we hesitate to plunge into the practice you recommend lest we should be burnt, as it is so contrary to all our methods and teaching."

Hospital *versus* home treatment.

One interesting point I should like to emphasise is the great advantage a scarlet fever patient enjoys by being treated at home instead of in the hospital. This may seem curious, but it is well established. In the hospital case much time is lost before the treatment is commenced. There is first of all the sending for the medical practitioner, probably waiting for a confirmed diagnosis; the certificate for removal has to be obtained; and finally comes the ambulance with all its risks of chill and other dangers. Moreover, if the case develops at the end of the week, there is apt to be a delay for Sunday. It is found that the numbers admitted to fever hospitals on Monday are much greater than those on any other day. For instance, on Sunday, May 2, 1909, at 10 A.M., I sent a special message with a notification of a diphtheria case, and requested early removal. The reply came back that he could not be removed "until ten o'clock to-morrow morning."

If, on the contrary, the patient remains at home,

the treatment is started at once, even before the diagnosis is verified. There is no risk of infection if this treatment is carried out thoroughly. The severity of the trouble, however, is greatly lessened. The few hours' delay caused by removal to a hospital may make a marked difference in the result. The trouble spreading to the nose or Eustachian tubes is unknown to me; yet, as one specialist remarked: "After a short time we have not only the scarlet fever germ infection to deal with, but others secondary to this, causing the very greatest trouble." As I have said, I have never had any experience of secondary troubles with this treatment. This point has been most powerfully impressed on my mind by the intercourse I have had with superintendents of scarlet fever hospitals. It greatly surprised them to learn that I have never had secondary difficulties with throats, noses, ears, or kidneys. These, then, are powerful arguments for the home treatment of scarlet fever. The hospital specialist, it appears to me, is placed at a great disadvantage with the results which will follow private treatment of the trouble at home by an ordinary medical man. All this is most fully borne out by the following from the *Practitioner* for December 1909, p. 866:—

Notes from Foreign Journals

The Treatment of Scarlatina.

After discussing the chief difficulties in diagnosis to be met with, Garlipp describes the methods of treatment in use in the children's wards of the Charité. Every case should be kept in bed for at least three weeks; for, even in cases to all appearance mild and running a normal course, there is no security against an unpleasant surprise. Every rise of temperature calls for a careful search for its cause, and the practitioner must be on his guard, even when the temperature falls very gradually. The sick-room must not be too warm (60° to 62° F.), and, whenever it is possible, the two-room treatment should be adopted. For delirium and stupor, warm baths with cold douching are ordered. Cold baths must be avoided, as they do not suit the children. When there is pyrexia to a degree requiring reduction, the cold pack is used for from 10 to 15 minutes every hour. The parched lips and the region of the nostrils are moistened with the mucilage of quince, of the German Pharmacopœia. The throat always demands particular attention. The tonsils are extremely susceptible to the invasion of streptococci, as they have been deprived of resistance by the scarlatina toxin. By this path may gain entrance the dreaded scarlatina

diphtheria, suppuration of the glands, severe phlegmon, and eventually general sepsis. Frequent spraying is necessary throughout the day; gargles are not enough, because the fluid does not get far enough back into the throat. The best mouth-wash has been found to be a 5 per cent. solution of ichthyol, which, unhappily, has a detestable taste, but children soon get used to it. A 3 per cent. solution of peroxide of hydrogen is also of good service. In the diphtheritic condition, injections of 3 per cent. carbolic acid solution into the tonsils often prevent a more severe affection of the glands in the neck. Half a Pravaz syringeful is injected into each tonsil by means of a Taube's cannula. The injections must be left off if any signs of commencing necrosis appear round the site of the injection-wound. In more advanced swelling of the lymphatic glands, plasters of 50 per cent. ichthyol ointment are often of use. These glandular swellings are not incised too quickly, hot fomentations being used as long as possible. In making an incision, the skin will often be found to be much thickened. The ears, which are affected with alarming frequency, also require careful watching.

In the early stage of otitis media, it appears to be amenable to instillations of Glycerin. Acid. Carbol (5–10 per cent.). If the least bulging of

the tympanic membrane is noticed, paracentesis is performed at once. When the ear is discharging, and, suddenly, high remittent fever sets in, for which no apparent cause can be found by a careful investigation, disease of the mastoid is suspected. In children, no pain on pressure is, as a rule, obtained, and the upper wall of the meatus does not bulge downwards, although, in the subsequent operation, the antrum and its surrounding parts are found to be full of suppuration. If, therefore, the temperature remains high, and nothing can be found to account for it, trephining the mastoid is performed immediately. Delay is out of place, as it may lead to the gravest, not infrequently fatal, consequences. When any rise of temperature occurs, the heart must be examined for the presence of endocarditis, but the lungs are very seldom involved. During the end of the second and the beginning of the third weeks, the patient needs careful watching. Should any rise of temperature, even if only a few points, occur, the urine must be carefully tested. It is at this period that hæmorrhagic nephritis begins. It is not infrequently found at the same time that the glands of the neck are again swollen. This soon subsides without leaving any traces. In the Charité, the use of prophylactic doses of urotropin has been tried, but was found quite nugatory. When nephritis occurs, the child is given milk

for some days, and then a salt-free diet, or at least one poor in salt. During the whole time that the kidneys are affected, the amount of urine passed is to be strictly observed, for it is only by this that the severity of the disease can be properly gauged. More or less albumen, and a small or large number of cylinders, are relatively unimportant. A decrease in the amount of the urine portends uræmia. The sovereign remedy for the prevention of uræmia is bleeding, and, since it has been used there systematically, no more children have been lost from uræmia in the Charité. As soon as the daily quantity of urine falls below 300 to 400 c.c. (10 to 15 ounces), six leeches are applied to the loins over the kidneys, and free hæmorrhage is encouraged after the leeches have dropped off. There is, as a rule, so much bleeding that acu-pressure has to be used to stop it.

If the amount so obtained is not enough for the purpose, venesection is performed on the following day. The bleeding must be freely made. As much as 200 c.c. (7 ounces) can be safely taken from older children. Hot-air baths are also of use. In some recent cases, a surprising improvement was sometimes obtained after lumbar puncture. All other remedies are superfluous, if not of positive harm through irritating the kidneys. When there is a larger

quantity of blood in the urine, gelatine, to which raspberry vinegar is added to improve the flavour, is of advantage. Scarlatinal rheumatism is best controlled by aspirin, pyramidon, and the like, giving larger doses at shorter intervals. Serum-treatment cannot be recommended. No real effect has been obtained with any of the anti-streptococcus sera; even with Moser's polyvalent serum the effect is uncertain, while the introduction of such large quantities (200 c.c.) of horse-serum entails the danger of collapse, fever, and serum-eruption.—*Therapeutische Monatschefte.*

In one of our branch Homes a little fellow was notified for scarlet fever. There was no request for his removal, yet the ambulance appeared and he was removed to the isolation hospital. In my notes of the case I find well-marked throat and rash all over body and limbs. He had been under treatment for over twenty-four hours. In a short time he was returned from the hospital, as no sign of scarlet fever was found. After his return his hands and feet peeled freely. A wonderful testimony to the advantage of the plan of treatment.

The question will doubtless arise in many of your minds (as I have been frequently asked): "Can this method of treatment be carried out by a mother in the poorer circles of life? Can the wife

of a labourer, with her one, two, or three rooms and six children, be expected to treat the throat and rub the child as advised?" If not, why not? They are entrusted with these priceless gifts. If we have so cramped, cabined, and cribbed them that pigs, dogs, cattle, and horses are better provided for, who is to blame? It is a shame that our paupers, prisoners, and lunatics have ample breathing space, and carefully prepared, good food, and suitable recreation rooms and grounds, while many honest labouring poor and their children are thus treated. Frequently have I heard in the deepest pathos, from poor but honest parents, such deeply pathetic words as these: "How much better it would be for our children if we were dead or locked up in prison. At home we cannot give them sufficient clothing and food; but if we were dead or in jail they would be taken into some such Home as yours and be well cared for and trained." Such ought not to be, and will not be if we do our duty. In the meantime, let a nurse be provided to go round and not only attend to the children, but also carefully instruct the mother.

Some questions and answers.

It may perhaps meet some difficulties if I set out here some questions which have been asked of me by many medical men who had read my papers, and who wished the fullest information about the treatment. Some of the questions are

elementary, but I may be excused if I repeat myself in giving brief answers to them, as other medical men may feel the same difficulties as my querists have done :—

(1) *Q.* Do you paint the throat with 10 per cent. carbolic oil for more than twenty-four hours in any case?

A. Only rarely, when the case is bad or treatment delayed.

(2) *Q.* I understand you rub the patient very gently all over with 1 in 10 carbolic oil or eucalyptus oil twice a day for four days; then once a day until the tenth day. Do you after that stop all oiling and leave the skin dry until the peeling is finished?

A. Yes, I do.

(3) *Q.* Do you use the eucalyptus oil pure or diluted?

A. Pure.

(4) *Q.* Do you consider that with this treatment carefully carried out there is any necessity to burn the patient's clothes after the case is treated; or, subsequently, to disinfect the room which the patient has occupied?

A. There is no infection about anything in the room after the patient is treated. Therefore, clothes, toys, books, &c., are harmless. When the patient is moved from one bed to another before the treatment is used, then the *first* bed and bedding should be disinfected. The same applies to clothes the patient may have been wearing before the treatment. These should be sprinkled with eucalyptus, or put for some hours in the sunshine and air. The room occupied by the patient should be well sprinkled with eucalyptus, and abundance of

light and air admitted if the contents of the room are not removed and treated by the sanitary authorities.

(5) *Q.* Is the patient a source of infection at all at any period of the disease?

A. Not after he has been once treated.

(6) *Q.* Do you find that the treatment prolongs or shortens the time during which the peeling is in progress?

A. Decidedly shortens it.

(7) *Q.* For how long do you consider that children treated by your method need extra care and protection?

A. For at least three weeks in winter they require warmer clothing.

(8) *Q.* Do you consider that a mild case needs any further treatment beyond an occasional aperient when necessary?

A. Nothing, unless the medical attendant considers it advisable.

(9) *Q.* Do you let your patients run about the sick room with high temperature, say, 100–102°?

A. Certainly not.

(10) *Q.* You say there is no risk of the infection when the patient is properly treated? Does this mean that the child must receive the treatment on the first day, or do you consider that a child cannot transmit the contagion so early?

A. The treatment should be commenced on the slightest suspicion, for the earlier the treatment the better is the result.

(11) *Q.* Are the bed-clothes used by the child before treatment is carried out not infectious?

A. Certainly they are infectious until the treatment is used.

(12) *Q.* Should the oil be rubbed over the face as well as over the body?

A. Yes.

Some medical testimonies.

Revolutionary although this treatment may appear, I have received quite a large body of evidence from experts to the effect that the profession recognises its great value. Correspondents describe it as "the most tremendous revolution ever proposed in medicine," and "an epoch-making experience," "revolutionary, but a great blessing both to the profession and to the public." Two doctors remarked, "After this our hospital system is doomed." Two speak of "your most instructive article," and suggest that it should be reprinted specially for the use of medical missionaries in China, India, &c. The point that seems to have struck most of my correspondents is that my treatment does away with the necessity for isolation. The practice of medicine text-books state that rigid isolation for at least six or eight weeks must be carried out even in the mildest cases of scarlet fever. That, of course, is the doctrine in which all of us have been brought up, and it probably requires some courage and initiative to fly in the face of it. Yet I am convinced—and I hope that the experience, as already reported, will go far to prove to my medical brethren—that such isolation is wholly unnecessary in dealing with scarlet fever.

Other comments by medical men run as follows :—

"We are quite amazed: we expected to find the cases in a corner by a window. What more could we see than we have seen? A fresh case like a boiled lobster, others heavily peeling, side by side with serious operation cases! We never heard of such a plan of treatment. It will be an absolute revolution."

"Since my visit to your hospital I have set apart one ward for your treatment. So far no one has caught it."

"Your treatment was adopted. No further case developed. In future I am to treat all cases in the same manner."

"I had excellent opportunities of testing it with complete success."

"We were highly pleased with the result. There is no doubt that it is most wonderful, and I have no hesitation in saying that it will be universally adopted. I trust you will be long spared to see the result of this great blessing you have bestowed on the country."

"I have tried your method with success."

"It will indeed be a wonderful discovery and boon, as we need no longer fear infection."

A synopsis of the present paper was read on Friday, November 26, 1909, before the Epidemio-

logical Section of the Royal Society of Medicine. On that occasion John C. Thresh, Esq., M.D., D.Sc., medical officer of health for Essex, communicated the following note on the paper to the Chairman of the Epidemiological meeting, and it was read to the members :—

"The treatment of scarlet fever patients by inunction with eucalyptus oil has interested me for several years, and when I had charge of the small isolation hospital belonging to the Chelmsford rural district I used it in nearly all cases. During one epidemic the hospital was overcrowded, and about a dozen patients were accommodated in a tent. All the patients did extremely well.

"I formed a very pronounced opinion upon its value, but whether it rendered a child non-infectious after ten or twelve days I was not able to determine. The popular opinion that a child is infectious so long as it shows the slightest signs of 'peeling' is so strong that I did not dare to send out a child until desquamation had practically ceased.

"Many medical officers to hospitals would, I believe, try the experiment, if they could feel certain that they were not laying themselves open to an action for damages if a return case occurred.

"The enormous pecuniary and other advantages which would accrue to the community, if Dr.

Milne's claims were substantiated, as I believe they can be, lead me to hope that some means may be devised whereby the treatment can be tested under conditions which would render the results conclusive."

Copy of Letter from S. FRAZER, Esq., L.R.C.P., L.R.C.S., *Medical Officer, Hackney Training Schools, Brentwood.*

"BRENTWOOD, ESSEX, 21*st November*, 1909.

. . . . . .

"With regard to the scarlet fever, I am certainly of opinion that the treatment you advocate is not only beneficial to the patients themselves, but as a means of preventing the spread of infection is far and away the most successful method yet employed. I say that, not simply as M. O. H. for a small urban district, but also as medical officer for an institution containing over 500 children. I cannot just now give you details of the cases, but I may say that for the last three years I have adopted your mode of treatment with the most satisfactory and gratifying results. I am looking forward to the meeting with the greatest interest."

The future of the isolation hospital.

I am sure that we medical men have all repeatedly felt the deepest sympathy for parents who have been told that their child was suffering from

scarlet fever, and that it would be necessary to remove it to the isolation hospital. Gladly would we have done anything to avoid this parting from their child. It ought to be a very great relief to the profession if they could see their way, as I contend they can see it by this treatment, to avoid such laceration of feelings, and at the same time practically guarantee that the course of the disease will be greatly lightened. I certainly should not recommend that the isolation hospital should be abandoned, but its scope and function should be widened. The home treatment of scarlet fever is, I contend, the best possible; but the isolation hospital ought to be used for the purpose of taking in, for short periods, children who are *obviously failing in health*. I know that here I touch a matter of the widest public interest and importance. I strongly advocate the weighing of children from time to time. I have often found that loss of weight shows a child's falling off in health long before any other sign becomes visible even to the practised eye of the medical man. Among the thousands of boarded-out children from Dr. Barnardo's Homes, this system of weighing is regularly carried out with the most satisfactory results. It is at this early stage, before any visible signs can be detected, that the insidious onset of tuberculosis trouble can be discovered and combated. A short period of kind and careful

nursing, together with a change of surroundings, speedily reinvigorates a child. The expense incurred is small in comparison with the benefits that accrue. For children who are more seriously indisposed a seaside convalescent home might be arranged, and it is in this preventive work that isolation hospitals in the future ought to find their finest sphere. It is by such kindly forethought and treatment alone that we can hope to invigorate thousands of our future men and women—the fathers and mothers of the coming years. I am sure that to divert isolation hospitals to this task would mean a national benefit from the physical health point of view.

Household economy of the new treatment.

When scarlet fever attacks a middle-class family the mother is prevented from attending her own child. That means extra nursing, extra food, extra labour, and all these items, in an ordinary family, are of very great consequence. Such expenses would, by the adoption of this treatment, be reduced to a minimum, and that reduction is worthy of great consideration.

Other advantages of the new treatment.

It must also be borne in mind that the father of a family attacked by scarlet fever is, in many instances, prevented from going about his ordinary work so long as the illness continues. That means a loss of wage or salary, and that just at a time when household expenses are greatest. For many years I have never asked a father whose children

were ill with scarlet fever to remain absent from his ordinary duties, even when working among the children under my care. The money loss to a community arising from an epidemic of scarlet fever is often of the most serious order. A recent outbreak in a country district, I have been credibly informed, has caused a resultant loss in wages of £50 a week, and the Glasgow epidemic has produced widespread loss of work and much consequent suffering.

Then again, the healthy children in a family attacked by scarlet fever are prohibited from attending school. In many schools the child has to take back with it a note from its parents certifying that it has not been in contact with an infectious case during the holidays. From various schools I have seen such notes as the following in regard to scarlet fever cases: "I am very sorry to have to send all the boys back, but must obey regulations." I have not enforced any absence from school on the part of those who live in the same home owing to scarlet fever for more than twenty-five years, and during all that time I have been dealing with child cases. I hold that no such loss of school attendance is necessary. At most, in ordinary cases, the child affected need not leave school for more than ten days if it be properly treated for scarlet fever at home.

The truth is that when this method of treatment

for scarlet fever is generally adopted, the effects will be far-reaching to an important and even unsuspected extent, and this quite apart from the merely professional aspect of the matter. A friend of mine, for instance, who is an owner of weekly property in London, lately told me that during the past five years he has had six or seven sporadic outbreaks of scarlet fever in his houses. In each instance he has had to pay a bill of costs amounting to several pounds for disinfection and cleaning. Such an expense will be rendered wholly unnecessary when this plan is adopted. I never order even the washing of a blanket or a night-dress, far less the disinfection of a room, for merely disinfecting purposes after scarlet fever. Wherever a patient has been properly treated he ceases to be a centre of infection ; no infective risk remains. A child may sleep in the bed which the patient has occupied. In this matter alone there would be a very large saving to the public purse without danger to the public health. That is only one of many directions in which the marked benefit of the treatment would be manifested.

A neglected item in school hygiene.

To the general subject of scarlet fever infection I have given a good deal of thought and attention. It is extremely difficult to trace the origin of some outbreaks. Every medical man thinks of milk at once, but in many instances that have come under my observation the milk has been proved to be per-

fectly guiltless. One striking point has, however, been brought to my notice, which I am convinced deserves attention. It is somewhat new, and yet I am certain that in many cases it may be regarded as a *vera causa* in regard to scarlet fever and other infections.

I have already given some details regarding the scarlet fever outbreak at Leopold House—one of our London Homes, I may reiterate, in which there are about 300 boys aged from eight to fourteen years. Every lad in the Home was repeatedly and very carefully inspected lest any case had escaped observation. There was apparently no milk infection. One day, however, I went to the house and asked the master if there was any special group of lads among which he thought more cases occurred than amongst others. After a little thought he replied: "Yes, we have more cases among the pipers." I may say that several of the boys in this Home are trained musically, and the bagpipes are among the instruments taught. This statement gave me a clue. Each lad was accustomed, I found, to use indifferently any one set from among the several sets of bagpipes; consequently the bagpipes were continually passing from one to the other, and the mouthpieces were not meanwhile disinfected. Can one conceive of a more likely cause of infection? Doubtless the secretions of the throat, at least at first, form the very best

means for the scarlet fever germ. These germs would be forced upon the mouthpiece, and there the germ might lurk for many hours, perhaps days, to infect the next player if the boy was in the first stage of scarlet fever before the disease had been diagnosed.

Pens and pencils.

From this my thoughts passed on to other possible lines of infection of a similar nature. Among the 300 boys in the Home there were scholars going to six different schools. In all of these schools both slate or blacklead pencils and pens are used. Not one of these lads had a pen or pencil of his own, nor is it usual in any school for a scholar to retain his own individual pencil. In all our board schools, and to a large extent also in our secondary schools, slate or blacklead pencils, as well as pens, are collected twice daily after being used, put in a box, and then given out again indiscriminately on the next occasion. Day by day millions of pencils are passed round among our young people attending school. I ask, as a further step, have any of us ever met a child who was not in the habit of putting the pencil in his mouth and chewing, sucking, or biting it? Did any of us fail to indulge in this habit in our own school-days? What must be the result? A little reflection will show that many a child in the incipient stages of scarlet fever, measles, whooping-cough,

mumps, consumption, and, above all, diphtheria and syphilis, may thus become a certain source of infection for the companion who gets the contaminated pencil on the next distribution. I firmly believe that this practice constitutes a real and terrible, though perhaps unsuspected, danger. In the higher class of schools the finer drawing pencils may be the only ones not appropriated to individual children; but, in the main, I think it is accurate to say that pens and pencils are given out of a common box; they are re-collected at the close of the school-hours, not washed or disinfected, and put away from air, light, and particularly sunshine, which is the best germ destroyer, into a dark cupboard. We could not devise a better method of preserving infective germs in their fullest vigour and vitality.

Ink erasers.

This very day (September 15, 1909), while going over a school in South London, I found one box full of lead pencils and another of slate pencils for general distribution and use, while the boys were writing with pens already given out. The tooth-gnawing spoken of was in abundant evidence. In many cases more than half of the wood of the lead pencils and pens had been bitten away. In another box with an air-tight lid I was quite surprised to find a collection of small pieces of india-rubber or ink eraser for rubbing out marks. These, too, like the former, were

for general distribution and use. As a rule, no child uses an eraser until at first moistening the rubber so as to strengthen and assist its action. Moreover, rubber is most pleasant in the mouth, and the specimens gave ample evidence of the fact that the children appreciated them! Even more than pen and pencil would this rubber hold and spread infection, for any disease germs would be bitten into its surface so that they might linger in it for months or years, especially in a practically air-tight box. On inquiry, I find that the distribution of india-rubber erasers is carried out in schools on the same lines as the distribution of pens and pencils.

Books.

Under the same dangerous category comes the general distribution of books to the pupils in some of our schools. When books have served one session, even when well worn and marked, it is the rule to pass them on to the next comer, the original owner having perhaps passed into a higher class to take up a similar legacy. This succession goes on in spite of infectious cases having arisen. I know an instance in which the daughter of a fellow-worker in Dr. Barnardo's Homes was sent to a large public school from a home where there were many children, yet where there had not been an infectious case of any disease for years. After she had been some months there diphtheria broke out in the school,

and this girl was attacked, although not at all among the first to be so; yet she was blamed for the outbreak. For over twelve months occasional swabs have been taken, and she is refused admittance until free from *anything like* the germ in her nose. Yet all the time, day by day, school-books were handed out indiscriminately! And I am convinced that here lay the root of the mischief. The indiscriminate buying of second-hand books, I believe, is also responsible for many a similar outbreak which cannot be traced through customary channels.

Oral infection.

The dangers of oral infection are a commonplace to all medical men, and frequently reported in the medical journals. Only this month, in one of them, details are supplied of a most pitiful instance of three virulent cases of specific disease (syphilis)—grandmother, mother, and baby—due undoubtedly to oral infection from a little girl of ten years of age, who had a sore on her upper lip. Both syphilis and diphtheria, indeed, afford numerous examples of mouth or lip infection in medical literature and experience.

Had we but recognised this dangerous and, I believe, very certain cause of the spread of disease, I wonder how much might have been saved that has been expended in rectifying drains and shutting up schools for the purpose of "preventing epidemics"!

After carefully studying the Leopold House outbreak, where all the cases were from two schools, I came to the conclusion that certainly the disease was perpetuated owing to pencil contamination. Yet my son remarked to me on two occasions that he had carefully gone over the dates on which the cases occurred, and that he was positive there were two separate lines of infection running, although he could not trace them separately. I ordered the lads to be kept from the two schools for some days to see if the chain would be broken. After three days I was able to report a complete and continued cessation of the trouble.

Following the same line of thought, I was led to review the Village Home epidemic at the end of 1904 and the beginning of 1905. I carefully went over all the cases, tabulated them afresh, with ages, school standards, and the cottages in which they lived. This reinvestigation brought me firmly to the conclusion that the outbreak did not arise from milk infection, but certainly from pencil infection. The earlier patients were drawn almost exclusively from the higher standards, consisting of older girls, while towards the end of the epidemic the patients were almost entirely among the little ones of four to eight years of age. This proved that milk, therefore, could not have been to blame, while pencil con-

tamination would fully meet all the difficulties. I am more and more, accordingly, inclined to believe that to this cause we owe not merely the Ilford epidemic, but many another mysterious outbreak which has puzzled us. I ought to mention that since the above danger occurred to me every child in the schools under my care has its name on its own pen and pencil, and is supplied with the same pen and pencil on every occasion.

Notes of Reply to Criticisms of a Synopsis of Paper on Scarlet Fever

(*Read before the Epidemiological Section of the Royal Society of Medicine on Friday, November* 26, 1909.)

It has given me great pleasure to be present here this evening, and also to listen to the remarks by various speakers on the paper which I have read.

One or two comments have been made as to the alleged risk of using 1 in 10 carbolic oil both in regard to the throat and to the kidneys. I have used it for thirty years, and I have never found that it gave pain or caused trouble in any way. In fact it greatly relieves pain, and enables the patient to swallow with comfort.

Drs. Turner and Biernacki gave us reports of their experience in the isolation hospital. One important point to be borne in mind in this connection, however, is that in hospital practice the medical attendant is unable to apply the treatment at the earliest period of the disease, and I regard this as of vital moment. Consequently such cases as have been reported upon come under the category of secondary infection, regarding which I have asked in my paper: "Are not *all* these complications caused by secondary infec-

tion?" Further, I know of no other application besides that which I have recommended, in which such effective results have been attained.

The dangers of pen and pencil infection, it was said, have already been recognised. But what have we *done* in the matter? We cannot insist too strongly or urgently upon the necessity for absolutely doing away with this real and horrible danger. By this, millions of children are daily exposed to numerous deadly diseases. Since my experience of two epidemics undoubtedly arising from this source, every child in the schools under my medical care has its name on both pen and pencil. There is no transfer of one to another, and consequently we have eliminated all risk of infection from this source.

Let me say, in reply to certain suggestions made by various speakers, that I have never urged that my proposed plan of treatment be taken up indiscriminately. I have merely set forth my experience, and I have repeatedly asked that it be tested under the united care of the medical attendant and the medical officer of health.

Dr. Curgenven's method has been mentioned as if he used pure eucalyptus oil. I refer to it later.

The question was asked: "How was it that in my former paper the ages of the girls at the Girls' Village Home were given differently from what I have given to-day?" As I have carefully men-

tioned in this paper, many babies are constantly passing through the receiving houses where the case upon which I commented occurred. The child, therefore, was constantly in contact with sixteen other children of under four years of age.

The reference to the danger of pen and pencil infection is thus referred to in an official copy of a memorandum of the Local Government Board :—

"Memorandum on the Circumstances under which the Closing of Public Elementary Schools or the Exclusion therefrom of particular Children may be required in order to prevent the Spread of Disease :"—

"Diphtheria and other diseases in schools are often conveyed from child to child by school appliances used first by one and then by another, such as slates cleaned with spittle, pen-holders and pencils which are apt to be sucked or chewed, and drinking vessels used in common. Appropriate steps should be taken to avoid such dangers."

So far as I have heard, however, the foregoing suggestion has never been in any way carried into effect.

This note, I should add, was first brought to my notice in a most kind and courteous letter received from a member of the Local Government Board. On account of the valuable suggestions of this letter I append it in full.

"LOCAL GOVERNMENT BOARD,
WHITEHALL, S.W.,
November 22, 1909.

"DEAR SIR,—I have had the advantage of reading an advance proof of your paper for the Epidemiological Section, Royal Society of Medicine, on 'Scarlet Fever: its Home Treatment and Prevention.' I was glad of the opportunity, as I may not be able to be at the meeting on Friday. The treatment which you describe, at any rate as regards the eucalyptus inunction, seems to be similar to that recommended by Mr. Brendon Curgenven in the *Transactions of the Epidemiological Society* for 1889–90, p. 93, who believed that it would render hospital isolation and disinfection unnecessary. Dr. J. Priestley in the *Transactions* for 1894–5 took a more moderate view of its usefulness. If the treatment has the advantages which were claimed for it by Mr. Curgenven, an explanation seems to be needed why it has not come into more general use. I observe that you combine with it a painting of the fauces with carbolic oil, and this may be a material point, as more importance is now attached to the faucial and nasal secretions than to the skin as the vehicle of scarlatinal infection. Probably, as medical officer to a resident institution, you are in a more favourable position for getting hold of scarlet fever cases at their onset than the private

practitioner or medical officer of health is. The danger of conveyance of infection by pencils, &c., though it may not be mentioned in text-books, is, I believe, well known to school medical officers. You will find it referred to in the enclosed memorandum."

A NOTE TO MY MEDICAL CRITICS.

In the *British Medical Journal* of January 23, 1909, a claim is made by Dr. J. Saddler Curgenven that his father was the first to use eucalyptus in the treatment of scarlet fever, and that he used it twenty years ago. His letter leaves the impression that eucalyptus oil was used by his father in the same manner as I myself have used it. His father wrote (in his first paper on the subject): "For the above reason I have used 'Tucker's Oleusaban Eucalyptus Disinfectant,' which consists of two or three essential oils of different densities with thymol and camphor dissolved in the oil of eucalyptus globulus." This preparation, the exact composition of which is unknown to the medical world, was sent out by the "Oleusaban Eucalyptus Company." Yet, as a matter of fact, I myself used many bottles of this preparation years ago. It had the advantage of being much more pleasant for the patient than pure eucalyptus oil, but I found it unsatisfactory, and I fell back upon what

I had myself employed twenty-five years ago. This failure, however, set my work back for years for carefully testing and proving afresh the pure eucalyptus oil with 10 per cent. carbolic for the throat. Doubtless others had the same experience of failure as myself, *e.g.* Dr. Priestley, and this would account for the Oleusaban preparation being only mentioned twice, while not used by any of the hundreds of experts and other medical men who have been in communication with me. Dr. Curgenven, I think, may well say "Save me from my friends"; for one friend who wrote afterwards, in the *British Medical Journal*, in support of Dr. Curgenven, entirely confirmed what I have written *re* the preparation used by his father twenty years ago. The method, therefore, recommended by Dr. Curgenven I tested and renounced, while the conclusion by another line of treatment that "no isolation was necessary" I affirmed. I have made no claim, as suggested by him, to be the first to use either carbolic oil or eucalyptus oil in the treatment of scarlet fever. Dr. Logan, of Liverpool, used both in an ointment more than twenty years ago, and rarely found it fail. All I would now say is that I have known no one use 10 per cent. carbolic oil or pure eucalyptus oil before I used them. Carbolic oil I know as having been in use over thirty years, and eucalyptus ointment for nearly, if not quite, as long.

I have to thank Dr. Ewart for his kind note in the *British Medical Journal*, where he states that "Dr. Milne is certainly the first who attacked the problem both by throat and skin." Contrast this with a recent statement in one of the best *Practice of Medicine* text-books, edition 1909, where the author asserts that not much requires to be done in cases of mild throat attacks, although in a previous paragraph he sets forth that this is often the cause of infection.

When I first laid my experience before my medical brethren in the pages of the *British Medical Journal* of October 31, 1908, I had no expectation of being called upon so soon to submit further and weightier results for their consideration, but when the cases arose and the way was so providentially opened I could only follow the invisible guiding hand and report upon the same, as I have now done. I therefore pass on these thoughts as—

"Thoughts not my own, nor deftly spun
From loom of loving heart or busy brain;
Thoughts lent to me from stores of other men,
That I might test their worth and pass them on;
Thoughts neither mine nor theirs, but gifts of God,
That all the glory be to Him alone."

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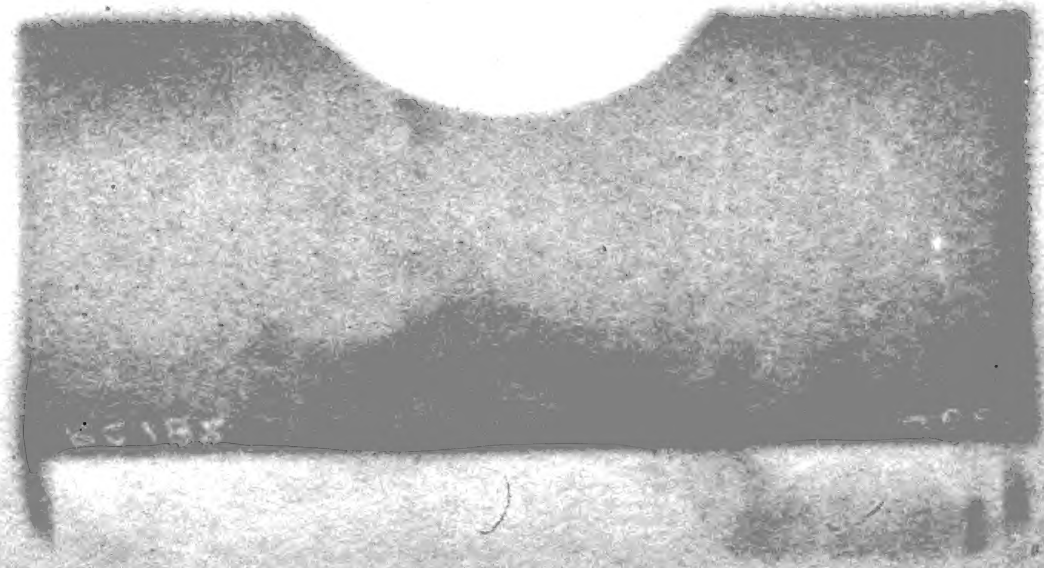

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